AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO

THE VOICE OF TRANSPORTATION

A Vision For Highway Safety in 2030

Michigan Highway Safety Summit

Lansing Michigan

Tuesday March 11, 2008

Dr. Anthony Kane

A Vision of the Future – Safe Roads Create a Safe and Prosperous America

VISION

The country's elected leaders at the federal, state and local levels, recognizing the public health and economic threat posed by the performance of our highway system, have joined forces to reduce highway fatalities by 50% by the year 2030 toward an ultimate goal of zero deaths.

AASHTO
THE VOICE OF TRANSPORTATION

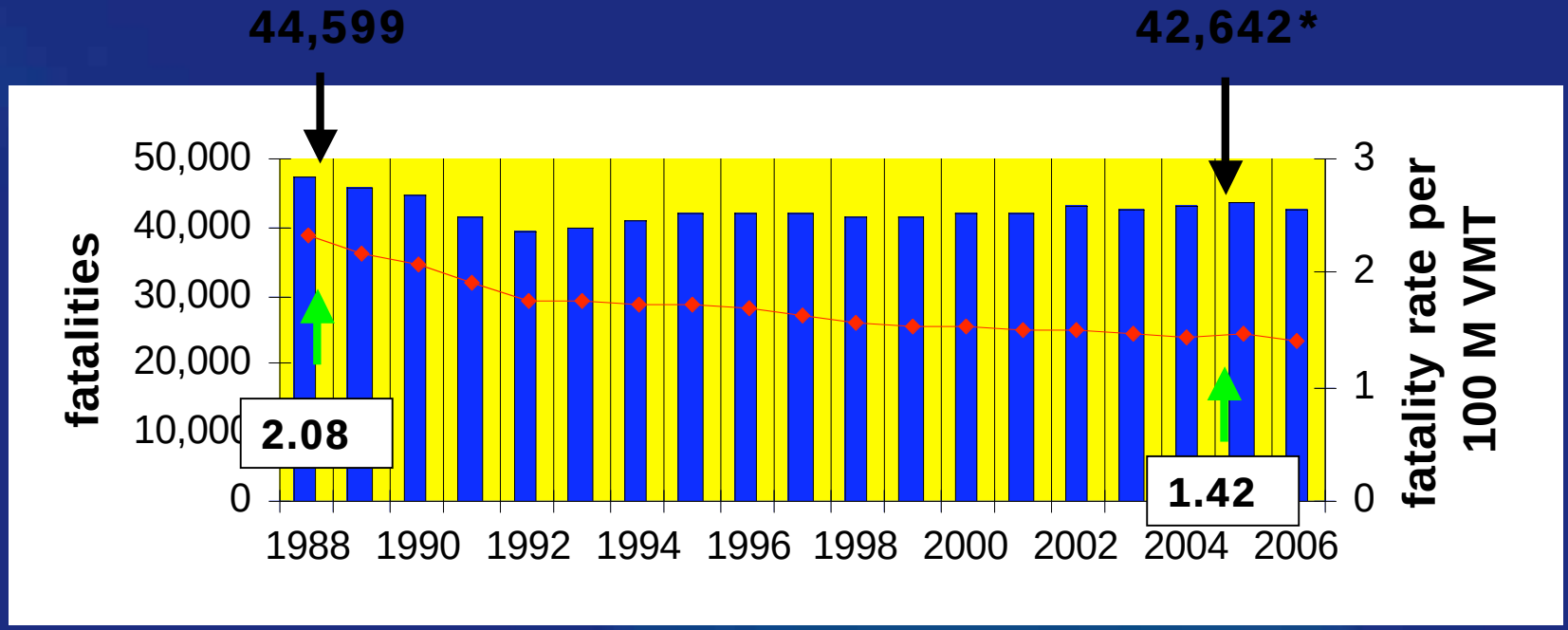
Achieving the Vision

- Leadership
- Change Social Behavior
- Effective Partnerships
- Take Advantage of Available Technology
- Increase Resources and Allocate Strategically :Infrastructure; Enforcement; Education; EMS; Vehicles

AASHTO
THE VOICE OF TRANSPORTATION

U.S. Highway Safety at a Plateau

Highway Fatalities in 2005 Highest Since 1990
Some Improvements in 2006



* NHTSA FARS-- 7/2007

AASHTO
THE VOICE OF TRANSPORTATION

Rural Highway Safety Issues

- Nationally about 60% of fatalities are rural
- Majority of rural are on two lane roads; half are off the state highway systems
- Poor data---for both the roadways and the crashes—lack of geo-coding
- Sparse pop. density; large road density
- Inadequate roadways
- EMS limitations
- Enforcement/ laws

AASHTO
THE VOICE OF TRANSPORTATION

Urban Highway Safety Issues

- Interchange infractions
- Pedestrian Fatals----15% of total statewide
- Nexus with delay----secondary crashes
- Enforcement difficulties in tight geometrics and under heavy traffic
- Aggressive driving

AASHTO
THE VOICE OF TRANSPORTATION

Michigan Traffic Crash Decade At-A-Glance

	2006	1996
Total Fatalities	1,084	1,505
Restraint Use	54.9%	44.5%
Alcohol/ Drug - Inv Fatalities	440	555
% of Alc/Drug-Inv Fatalities to total fatalities	40.6%	36.9%

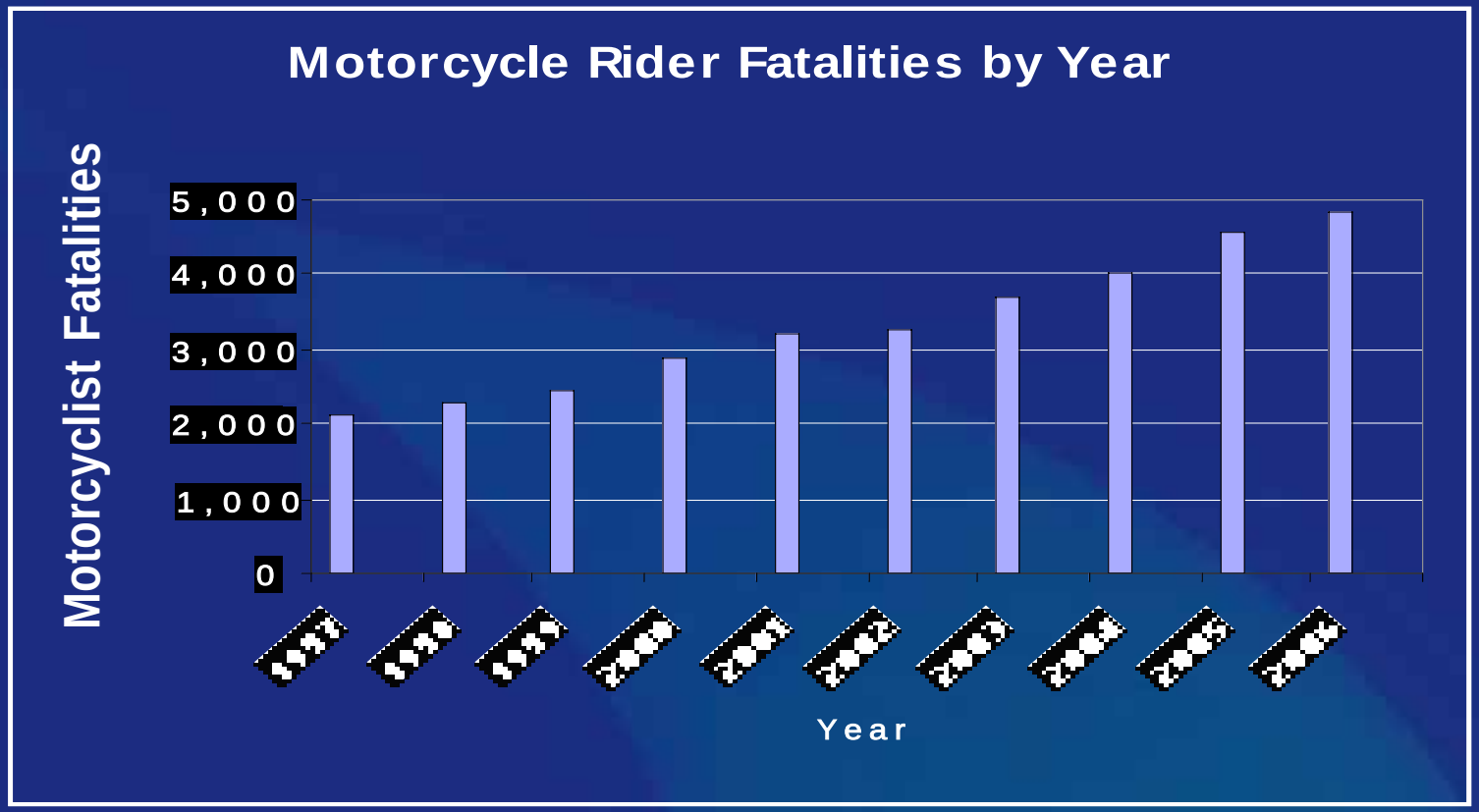
AASHTO
THE VOICE OF TRANSPORTATION

Emerging Trends to Watch

- Motorcycle deaths----10% of total and double-digit annual growth
- Large truck related fatals---13% of total and truck VMT growing faster than auto VMT
- Aging driving population
- Growth in Hispanic population—their leading cause of death overall in the US
- Downsizing of passenger cars; increasing size and number of trucks

AASHTO
THE VOICE OF TRANSPORTATION

Motorcyclist Fatalities (1997-2006) (FHWA)



AASHTO
THE VOICE OF TRANSPORTATION

Motorcyclist Fatal Crash Statistics (FHWA)

Motorcycles account for 2.5 percent of vehicle registrations, 11 percent of fatalities.

AASHTO
THE VOICE OF TRANSPORTATION

Motorcyclist Fatal Crash Statistics (FHWA)

- 60 percent of fatalities are middle aged riders (30-59).
- 41 percent involve alcohol.
- 45 percent without helmets.
- 24 percent unlicensed.

AASHTO
THE VOICE OF TRANSPORTATION

High Safety Payoff/ Problem Areas

- Alcohol – 40% of Fatals
- Speed – 30 % of Fatals
- Belts – 50% of Fatals unbelted
- Motorcycles – 10% of Fatals; double digit growth
- Large Truck involved – 12% of Fatals
- Highway Intersections – 25% of Fatals
- Highway Lane Departure – 60% of Fatals

AASHTO
THE VOICE OF TRANSPORTATION

Key Countermeasures

Issue	Roadway	Vehicle Technology	Laws & Enforcement
Alcohol		X	X
Speed	X	X	X
Seat Belts		X	X
Motorcycles			X
Large Trucks	X		
Intersections	X	X	X
Lane Departures	X	X	

AASHTO
THE VOICE OF TRANSPORTATION

The Past (IIHS)

- 1956 – first seat belts in US cars (Ford)
- 1968 - first federal motor vehicle safety standards
- 1974 – first frontal airbags in production cars (GM)
- 1984 – first belt use law in US (New York)
- 1991 – Congress mandates frontal airbags
- 1995 – first side airbags in production vehicles (Volvo)

AASHTO
THE VOICE OF TRANSPORTATION

Frontal airbags are effective (Ferguson, Lund, Greene – 1995)

- Belted occupants
  - Deaths 26% lower among drivers and 14% lower among passengers compared with vehicles without frontal airbags
- Unbelted occupants
  - Deaths reduced 32% for drivers and 23% for passengers

AASHTO
THE VOICE OF TRANSPORTATION

Study of side airbag effectiveness

IIHS, 2006

Airbags that protect head and chest

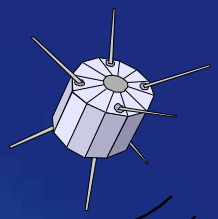
- 37% reduction in car driver fatality risk in vehicles struck on driver side and 52% for SUV drivers

Chest only

- 26% fatality risk reduction for car drivers and 30% reduction for SUV drivers

AASHTO
THE VOICE OF TRANSPORTATION

Vehicle Infrastructure Integration (VII)



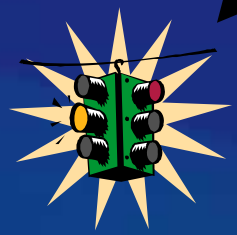
Hot Spot

Control & Map DataBase

Private

Sector Uses

Satellite to Vehicle (GPS)



Traffic Management Center (TMC)

DSRC
Vehicle-to-Vehicle

DSRC
Vehicle to Roadside

AASHTO
THE VOICE OF TRANSPORTATION

VII Potential Applications

- Signal violation warning
- Stop sign violation warning
- Curve speed warning
- Electronic brake light warning
- Electronic payments
  - Tolls
  - Parking
- Vehicle probes
  - Travel information
  - Road conditions
  - Signal control
- Commercial
  - Vehicle diagnostics
  - payments

AASHTO
THE VOICE OF TRANSPORTATION

VII Success Depends On (RITA—USDOT)

- Working technology
- Critical mass of roadside equipment
- Critical mass of equipped vehicles
- Sustainable business model
- Workable governance structure

AASHTO
THE VOICE OF TRANSPORTATION

We have a panoply of new technology that promises to reduce crash risk (IIHS)

- Brake assist
- Run flat tires
- Adaptive cruise control and headlights
- Blind spot detection
- Lane departure warning
- Night vision enhancement
- Backup warning
- Drowsy driver detection
- Blood alcohol monitor

AASHTO
THE VOICE OF TRANSPORTATION

Success of crash avoidance technologies depends on answers to three questions (IIHS)

- What is the size and nature of the problem addressed by the technology?
- What kinds of information (warning modalities) will elicit the right responses from drivers?
- Will (and how will) driver behavior change in response to the technology?

AASHTO
THE VOICE OF TRANSPORTATION

Safe Highways – 25 Year Vision for the Infrastructure Component

- Double the lane capacity of the Interstate System(innovative designs; separate truck lanes; work zone speed control ,etc.)
- Safe 2-lane rural road standards (common practice of greater lane separation, better shoulders, striping, signing, etc.)
- Effective Speed Management the norm
- Real Time Incident Management Pervasive
- VII or similar technologies in place
- Roadside Hardware Assets Optimized on LCC
- Traffic Signal and management assets optimized on LCC

AASHTO
THE VOICE OF TRANSPORTATION

National Innovative Policies for Safety

- President/Congress/Governors and State Legislators Adopt a Common Vision: Halve the Fatalities in 2 Decades
- President convenes a White House Conference on Highway Traffic Safety – tied to Public Health
- Safety Conscious Governors and State DOTs are showcased
- Incentives enacted to have all states have core safety laws: e.g. primary seat-belts; remove prohibition on using automated traffic enforcement and alcohol interlocks

AASHTO
THE VOICE OF TRANSPORTATION

National Innovative Policies for Safety Cont'd

- Tax Incentives for Safer Cars Faster
- Federal Support for technology such as: VII, V-V, CICAS, etc.
- Enhance Federal Highway Safety Programs and increase flexibility
- Federal data warehouse on counter-measures results
- National Peer to Peer Sessions to share successes

AASHTO
THE VOICE OF TRANSPORTATION

Health and Other Costs of Motor Vehicle Crashes

- $230 Billion per year annual in 2000(NHTSA):

  2.3% of GDP!! Medical care slice of this is $33 B/yr
- NHTSA Costs are Understated---non-monetary health related costs not.
- Pieces of the other economic components in NHTSA's estimate; e.g. insurance admin. ,legal , household work costs, etc.
- Health costs are increasing slice of State Budgets
- World Health Organization (WHO) Findings

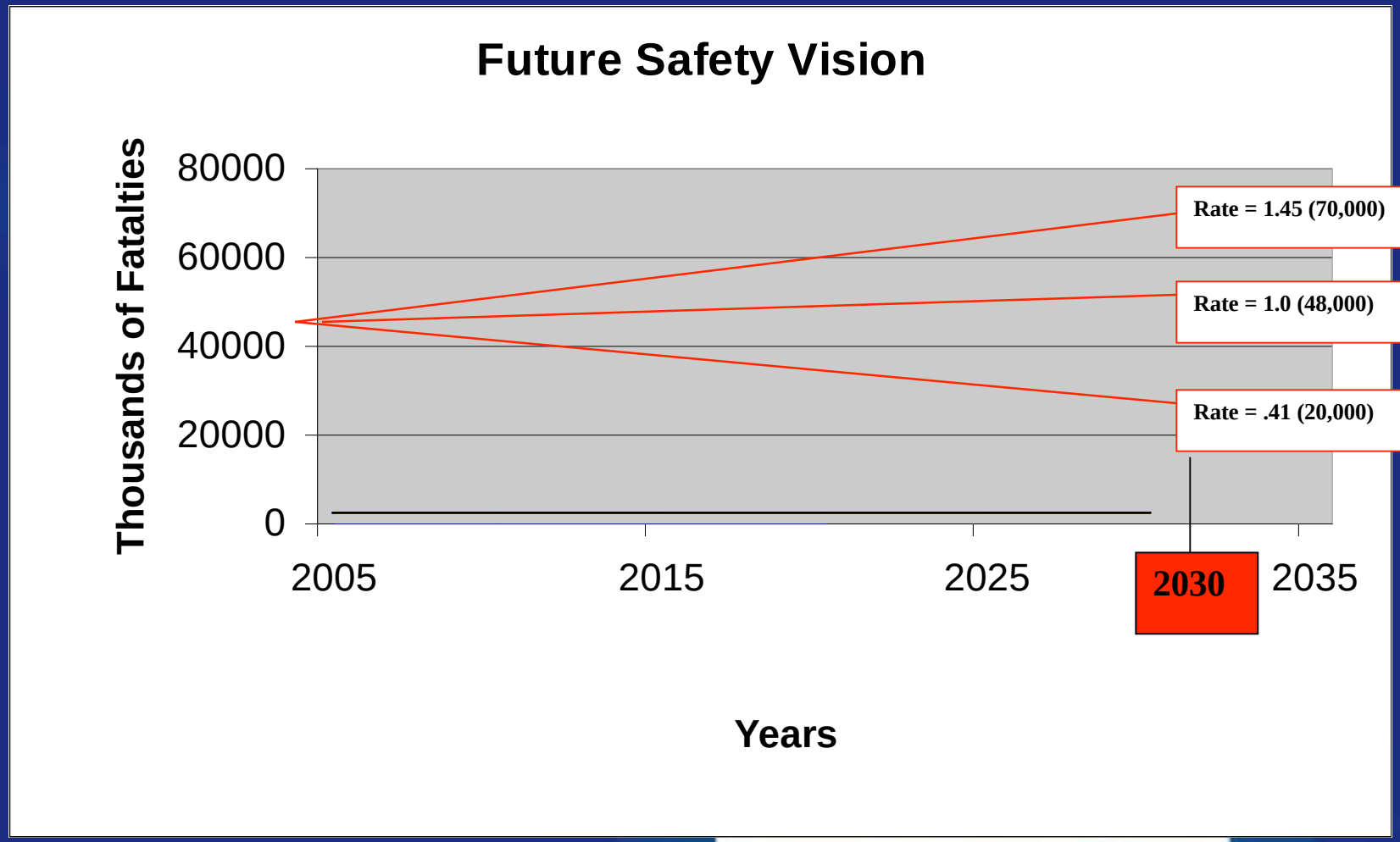
AASHTO
THE VOICE OF TRANSPORTATION

Bottom Line

- We know a lot about the causes of highway traffic deaths and serious injuries
- We have some very good countermeasures
- ***WE NEED THE POLITICAL WILL AND LEADERSHIP---TYING TOGETHER THE MESSAGE ON HEALTH COSTS ,THE ECONOMY AND QUALITY OF LIFE AND TRAFFIC DEATHS IS NEEDED***

AASHTO
THE VOICE OF TRANSPORTATION

THE FUTURE IS IN YOUR HANDS



AASHTO
THE VOICE OF TRANSPORTATION

Achieving the Vision

- Leadership
- Change Social Behavior
- Effective Partnerships
- Take Advantage of Available Technology
- Increase Resources and Allocate Strategically :Infrastructure; Enforcement; Education; EMS; Vehicles

AASHTO
THE VOICE OF TRANSPORTATION

THANKS!!

- Let’s all go and help save lives!!!!!!!!!!!!!

- Tony Kane akane@aashto.org
- (Material from IIHS—Mc Cartt; USDOT---Lindley and Row)

AASHTO
THE VOICE OF TRANSPORTATION